

NORTH ATLANTIC HURRICANES AND TROPICAL DISTURBANCES OF 1949

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Eleven tropical disturbances occurred in the North Atlantic during 1949.

I. *Hurricane of August 21-25*.—The first disturbance was discovered on August 21, 300 miles north of San Juan, Puerto Rico, moving west-northwest at 18 m. p. h. Six hours after discovery the storm was well developed with winds of 80 m. p. h. reported by surface vessels in its path. The hurricane moved west-northwest from the point of discovery to the position 27.5° N., 75° W., where it began to curve northward. Moving at a speed of 15 to 18 m.p.h., the hurricane passed over Diamond Shoals Lightship located off Cape Hatteras, N. C. As the eye of the storm passed over the Lightship, a 15-minute calm and a minimum pressure of 977.3 mb. (28.86 in.) were recorded. Shortly afterward the storm curved northeastward and finally eastward into the Atlantic.

The French ship *Marseille* passed through the center of this hurricane on August 25 at 1200 G. M. T. At this time the ship was at 38.0° N. and 60.3° W., and the lowest pressure recorded on the ship's barograph was 722 mm. (962.6 mb.; 28.43 in.). The captain of the ship reports as follows:

At first we experienced extremely strong southwest winds, overcast skies and rough seas. Next, these winds brought heavy rain reducing the visibility to almost zero. Afterwards, there was a short interval of almost calm, a small clearing at the zenith, and an enormous confused swell. Finally, the wind shifted to the northeast, blew with practically the same force, and gradually became a northwest wind.

II. *Hurricane of August 23-29*.—The second hurricane in 1949 caused more than \$52,000,000 property and crop damage in the southeastern States, about \$45,000,000 of which occurred in Florida. It caused the death of 2 persons and injured 133 others, 12 seriously. This hurricane was discovered in its formative stages on August 23 about 125 miles northeast of St. Martin, Leeward Islands, at latitude 19° N., longitude 61.5° W. It moved on a west-northwestward course for a time as a partially developed easterly wave, and some characteristics of the wave could be observed until the storm moved into the Bahama Islands two days later. The storm was well developed, however, by the time its center passed a short distance north of Nassau at about 5 a. m. of the 26th. It was over West Palm Beach Airport from 6:37 to 7:57 p. m., and a calm was experienced for 22 minutes from 7:20 to 7:42 p. m. The lowest sea level pressure was 28.17 in. recorded at the Weather Bureau Airport Station, West Palm Beach. The microbarograph trace for this station is reproduced in figure 1. The wind instrument was blown down when the velocity reached 110 m. p. h. with gusts of 125 m. p. h. The Official in Charge at the station estimated the highest wind at 120 m. p. h. with gusts of 130 m. p. h. A privately owned anemometer on Palm Beach, the accuracy of which is unknown, recorded gusts of 155 m. p. h.

The strongest wind occurred, as usual, some distance to the right of the center in the vicinity of Jupiter and Stuart, Florida. The anemometer failed at Jupiter Lighthouse after reaching a velocity of 153 m. p. h. The observer

reported that winds were somewhat stronger thereafter, but he felt unable to make a reliable estimate of the peak strength.

After leaving the east coast of Florida, the center of the storm crossed the northern part of Lake Okeechobee during the early part of the night of the 26th. The storm was the worst felt in that section since the disastrous hurricane of September 1928. The highest winds registered around the lake ranged from 100 to 126 m. p. h. on the instruments of the U. S. Army Engineers. The water of the lake rose 12 feet or more at places on the southeast and east side of the lake, but the levees held and there was no flooding from the lake.

After leaving the Lake Okeechobee area, the center passed northwestward through the heart of Florida's main citrus belt, where much fruit was destroyed, and upon reaching the west coast north of Tampa it turned northward and moved through Georgia and the Carolinas as a weakened disturbance. Figure 2 shows the path of this hurricane over Florida.

Pertinent meteorological information about this hurricane can be found on the backs of the Washington Daily Weather Map for October 31 and November 1, 1949.

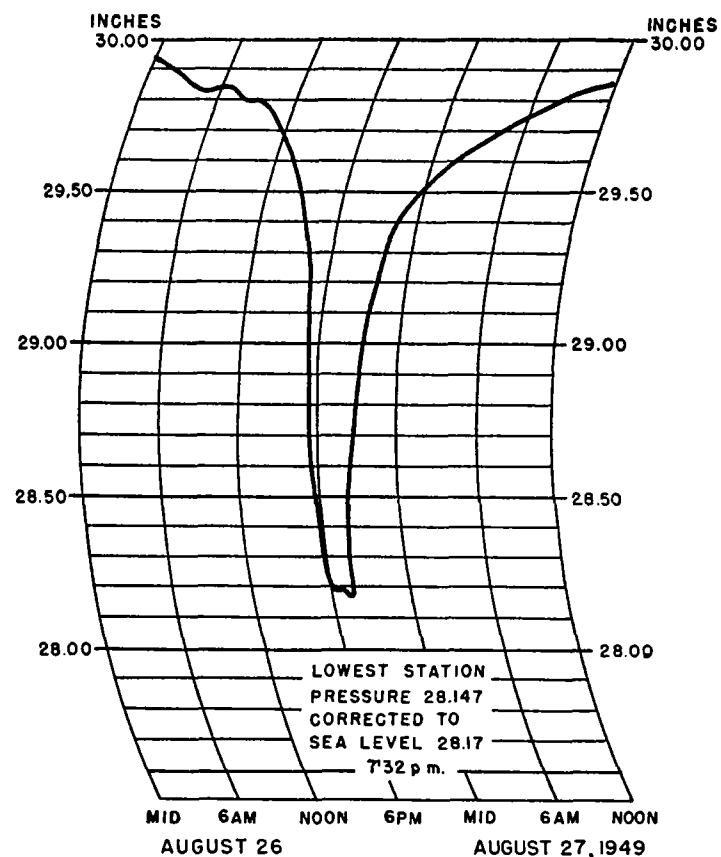


FIGURE 1.—Microbarograph trace at West Palm Beach, Fla., during passage of hurricane of August 23-29, 1949.

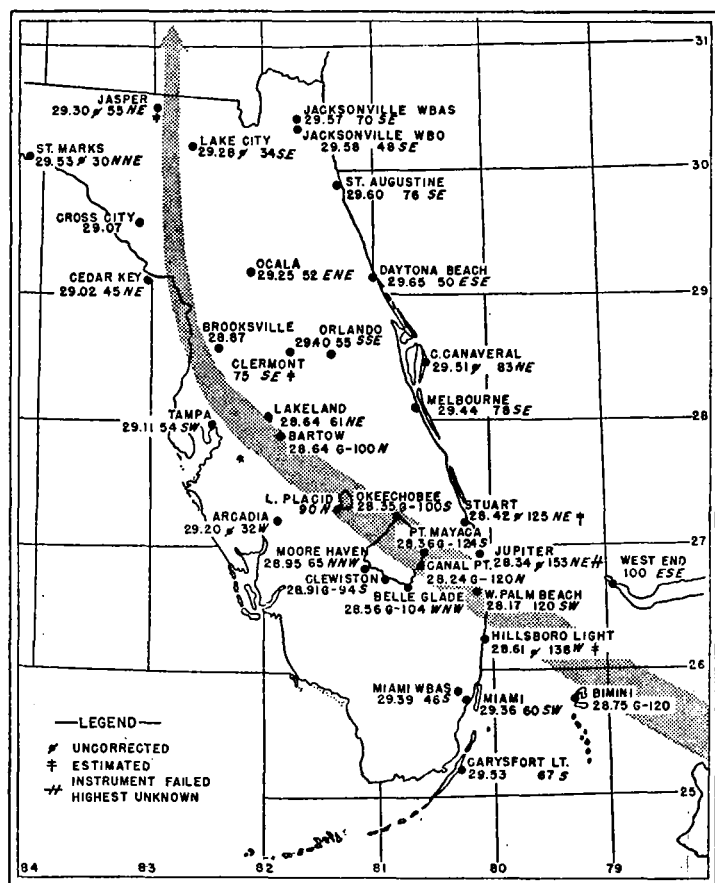


FIGURE 2.—Path of hurricane of August 23–29, 1949, across Florida on August 26 and 27. Lowest pressure (inches) and highest sustained wind velocity are shown. "G" indicates highest gust velocity.

III. *Hurricane of August 30–September 2.*—This storm was discovered by reconnaissance aircraft early in the afternoon of August 30. Although aircraft encountered winds as high as 50 to 60 knots at 1,000 feet and estimated surface winds as high as 45 to 50 knots in the eastern semicircle of the storm, no surface winds were reported higher than the 31 knots recorded at Caravelle, Martinique. Aircraft reported the location of the eye of this storm on several occasions, but apparently it never was well developed. Winds in the western semicircle never were very strong, and on the afternoon of September 2 there no longer appeared to be a definite center. The storm, having weakened considerably, moved westward as part of the easterly wave.

IV. *Hurricane of September 3–8.*—This storm apparently formed on the same easterly wave with which the storm of August 30–September 2 was associated. On the night of September 2 when the storm in the Caribbean had apparently weakened into an area of squalls, indications of a closed circulation north of the Virgin Islands began to appear. After passage of the wave the surface wind in the islands gradually veered to south-southwest and increased in velocity to Beaufort force 5 to 7. At 8:30 p. m. of September 2 the surface wind at San Juan was easterly but shifted to light westerly 3 hours later. The upper air at this time had westerly winds at all levels up to 25,000 feet. The storm rapidly developed to hurricane force and by late afternoon, September 3, aircraft estimated winds of 75 m. p. h. Rapid intensification continued as the storm moved north-northwestward on the

4th and 5th to about latitude 26° N., longitude 67° to 68° W., where it remained at nearly a standstill for 2 days, probably with a slow eastward drift. By afternoon of September 7 it had become a hurricane of great size and severity, and a north to north-northeastward movement was resumed. The center passed 60 to 70 miles east of Bermuda about 11 a. m. of September 8. Bermuda experienced strong gale winds but escaped hurricane force, since hurricane winds did not extend very far west of the center. North-northeast movement continued and the center passed very near Cape Race, Newfoundland, on the early morning of September 10, but by this time the storm had lost much of its force and it was becoming extratropical in character. There were no reports of damage.

V. *Tropical Disturbance of September 4–5.*—This storm originated in the Gulf of Mexico on the night of September 3–4. It took a northerly course and its center passed inland to the west of New Orleans on September 4 and to the east of Vicksburg, Miss., on the night of September 4–5. The highest wind reported was 45 m. p. h. about 10 a. m., September 4, at Bay St. Louis, Miss. Damage was reported in both Louisiana and Mississippi but it was small, probably less than \$50,000. No lives were lost.

VI. *Caribbean Hurricane of September 21–22.*—On September 20 a rather strong easterly wave was crossing the Lesser Antilles. Two reconnaissance flights searched suspicious areas for a possible tropical storm but no closed circulation was found that day. However, during the night of September 20–21 a closed circulation centered about 100 miles south-southeast of St. Croix, Virgin Islands, developed on the wave. This followed a report from the U. S. S. *President Adams*, at 15.7° N. and 64.0° W., indicating a surface wind of 51 knots from 250° . Aircraft flying in the storm area on September 21 reported hurricane winds in the northeast quadrant; but no strong winds, other than those by the aforementioned vessel, were reported in the western quadrants. This small hurricane moved west-northwestward to the southeastern coast of the Dominican Republic and dissipated as it moved inland in the vicinity of Ciudad Trujillo.

The storm caused damages to the extent of \$1,000,000 in Puerto Rico although the center did not pass over the island. The damage was mostly to the coffee industry and to buildings. No lives were lost in Puerto Rico. In the Dominican Republic only \$12,000 damage was reported but 15 lives were lost.

VII. *Gulf Hurricane of September 21–22.*—A weak wave passed from the extreme northwest Caribbean Sea into the Gulf of Mexico during the morning of September 18, moving west-northwestward. Reconnaissance flights on September 19 and 20 found no evidence of a closed circulation. Reconnaissance flights on September 21, however, placed the center at latitude 26.4° N. and longitude 94.0° W., at noon. The seas were rough along the Louisiana and Texas coasts and heavy squalls occurred locally along the Texas coast September 21–23. The highest wind reported at a coastal station was 51 m. p. h. at Port Isabel. Tides along the Texas coast were generally 2 to 2.5 feet above normal. On September 23 reports by radar and by plane indicated that this hurricane had dissipated.

VIII. *Hurricane of September 23–26.*—This hurricane developed within an easterly wave which had been stagnant over the western Gulf for the previous 3 days. A center was definitely located by airborne radar at 6 p. m., September 24 at latitude 21.8° N., longitude 95.7° W., and a wind of 52 knots was reported. During the

night of September 24, the S. S. *Potrero del Llano* reported winds as high as 80 m. p. h. at latitude 20.4° N., longitude 96.7° W. The storm weakened during the 25th and by the morning of the 26th its remains had passed inland between Nautla and Vera Cruz, Mexico. Winds at Nautla during a large part of September 25 were 40–60 m. p. h. Nautla was the only coastal station that reported high winds.

IX. Hurricane of October 1–6.—This hurricane moved from Yucatan almost directly northward. Pressure had been abnormally low over Yucatan, Honduras, and Guatemala 2 or 3 days prior to October 1. During the night of September 30–October 1 a low pressure center passed into the Gulf of Mexico near Carmen, Mexico and increased to hurricane intensity by 10:45 a. m., October 2. The center moved inland near Freeport, Tex., during the night of October 3–4, and passed between the Airport and City Offices of the Weather Bureau at Houston, Tex., during the early morning of October 4. Winds were estimated at 135 m. p. h. 5 miles west of Freeport by the Brazos River Engineers. High tides were reported as follows: Velasco, 11.0 feet; Matagorda, 8.0 feet; Anahuac, 9.0 feet; Harrisburg (in Houston Ship Channel), 11.4 feet. Figure 3 shows the path of this hurricane over Texas. Heavy rains fell at many places. The heaviest reported was at Goodrich, Tex., where 14.50 inches fell during the storm.

Two lives were lost in this hurricane. The total damage reported amounted to \$6,700,000, of which more than four-fifths was to crops. The remainder was mainly to roads and oil rigs.

X. Hurricane of October 12–19.—Disturbed conditions were observed in the western Caribbean Sea on October 11 and 12, and these moved over extreme western Cuba during the night of the 12th without any evidence of a center. But on October 13 a closed circulation began forming over the extreme southeastern Bahamas in the vicinity of Great Inagua and Mayaguana. The strongest winds at this time were only 30–35 m. p. h. This center moved in a north-northeast direction and increased in intensity, and at noon of October 14 aircraft reconnaissance indicated a very small center of hurricane force. The north-northeastward movement carried the center some 200 miles west of Bermuda by October 16. The next day, when several hundred miles north of Bermuda, it was blocked by high pressure and moved very slowly during the following 2 days to a position a short distance south of Sable Island on October 19. During this time it took on extra-tropical character and began to spread out and dissipate.

The strongest winds were estimated at 80 to 90 m. p. h. over most of its path but reached 100 m. p. h. about the time it reached latitude 35° N. on October 16. No dam-

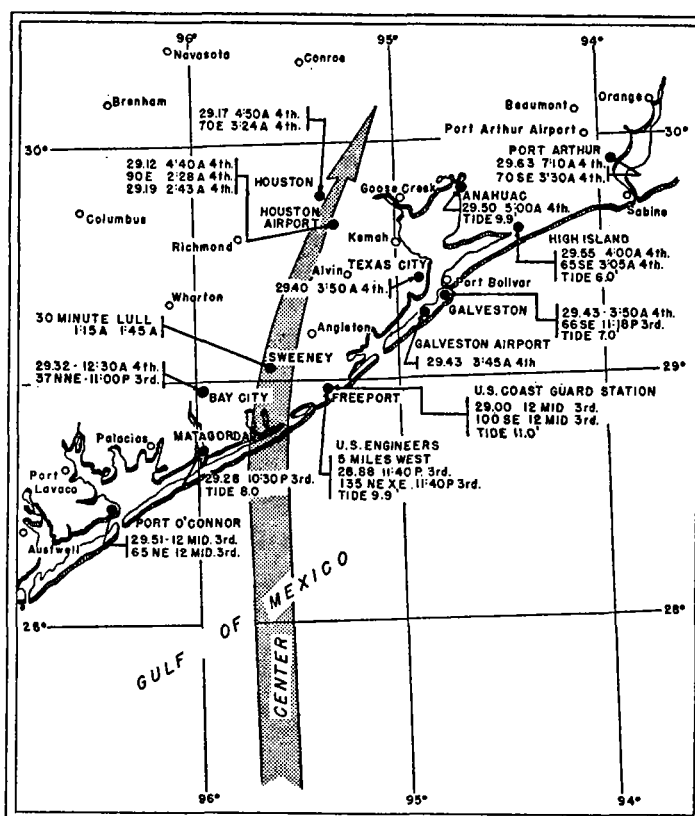


FIGURE 3.—Path of hurricane of October 1–6, 1949, as it passed inland over the Texas coast October 3 and 4. Plotted figures show extremes of wind velocity and pressure (inches) and the time of their occurrence. Maximum height of tide is shown for coastal stations.

age was reported as the strong winds occurred over the ocean.

XI. Hurricane of November 3–4.—The pressure began falling in the northwestern Caribbean Sea on November 2, and by morning of November 3 low pressure had become concentrated in the vicinity of Swan Island. A reconnaissance plane located a small center about 50 miles in diameter, perfectly formed with a well defined eye, about 30 miles east of Swan Island. The highest wind was estimated at 50 knots, and the lowest pressure, at 992.9 mb. (29.32 in.). It was described as very shallow in its organization. Earlier on November 3 a TACA airliner en route from San Jose to Havana had flown over the storm at 9,000 feet and described it very much as the reconnaissance plane had done. From this elevation, the entire system could be seen; the active part extended only 4,000 feet. During the night of November 3 it drifted south-southwestward into the northeastern tip of Honduras and dissipated. No damage was reported.

Tracks of North Atlantic Hurricanes and Tropical Disturbances of 1949

